Selected Abstracts from the June Issue of the European Journal of Vascular and Endovascular Surgery

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Deferred Urgency Carotid Artery Stenting in Symptomatic Patients: Clinical Lessons and Biomarker Patterns from a Prospective Registry

Setacci C., de Donato G., Chisci E., Setacci F., Stella A., Faggioli G., Reimers B., Cernetti C., Lopera Quijada M.J., Cappi B., Sangiorgi G., on behalf of the Submarine Registry Group. Eur J Vasc Endovasc Surg 2008; 35:644-51.

Introduction: The aim of this prospective observational registry was to study the outcome of symptomatic patients presenting with recent TIA or minor stroke and severe carotid stenosis, submitted to early percutaneous treatment by stenting. A secondary aim was to evaluate the biological activity of the symptomatic carotid plaques by serial serum and urinary markers (PAPP-A, hs-CRP, MMP-2/MMP-9, IL-6/IL-8, TNF alpha, CD40L) measured by enzyme-linked immunosorbent assay before and after treatment.

Methods: From May 2005 to June 2006, 57 patients were enrolled in this prospective registry. All patients underwent carotid stenting using a concentric filter for cerebral protection. The procedure was performed within 24–48 hrs of the last attack in patients with TIA ($n = 24$, 42%) and between 14 and 30 days in patients with stroke ($n = 33$, 58%).

Results: Successful stent implantation was achieved in all cases (100%). Adverse events at 1 month were 1 death (1.7%) and 2 TIAs (3.5%). Some of the vulnerability markers, in particular those reflecting an active systemic inflammatory process of the plaque (PAPP-A, hs-CR, and IL-6), were significantly elevated at the time of enrolment, increased after stenting and decreased after 30 days.

Conclusion: Deferred CAS is feasible and safe in selected patients with symptomatic carotid stenosis. This preliminary study in a limited series of patients with unstable carotid plaques revealed that endovascular treatment has a satisfactory outcome considering the very high risk profile of the patient population. The evaluation of some biomarkers suggested an inflammatory role in the process of an unstable carotid plaque generating an acute cerebral event.

Peroperative Neuromonitoring during Carotid Endarterectomy in Relation to Preoperative Positron Emission Tomography Findings

Rijbroek A., Boellaard R., Vriens E.M., Lammertsma A.A., Rauwerda J.A. Eur J Vasc Endovasc Surg 2008;35:652-60.

Objectives: To compare stump pressure (SP), transcranial Doppler (TCD), electroencephalography (EEG) and selective shunting during carotid endarterectomy (CEA) with preoperative positron emission tomography (PET) parameters.

Materials and methods: Preoperative PET measurements and preoperative neuromonitoring were performed in ten patients undergoing CEA for symptomatic carotid artery disease. PET parameters measured were cerebral blood flow (CBF), oxygen extraction fraction (OEF), cerebral oxygen metabolism ($CMRO_2$), cerebral blood volume (CBV), mean vascular transit time (MVTT) and cerebral perfusion pressure (CPP). Results of these measurements in ipsilateral medial cerebral artery (MCA), ipsilateral hemisphere and total cerebrum were compared with absolute mean SP, mean SP < 40 mmHg, TCD, EEG changes and selective shunting.

Results: None of the PET parameters showed any significant correlations with peroperative neuromonitoring findings. There were only trends for correlations of CBF and MVTT with TCD changes and of CPP and $CMRO_2$ with selective shunting.

Conclusions: Preoperative PET examinations are not usefull for predicting the need for shunting during CEA.

Selective Screening for Abdominal Aortic Aneurysm among Patients Referred to the Vascular Laboratory

Ålund M., Mani K., Wanhainen A. Eur J Vasc Endovasc Surg 2008;35:669-74.

Background: Patients examined for peripheral arterial disease at the vascular laboratory, Uppsala University Hospital, are since 1993 screened for abdominal aortic aneurysm (AAA). The objective of this study was to study the prevalence of AAA found at this selective high-risk screening.

Methods: All files in the vascular laboratory were retrospectively reviewed. Of 9296 persons examined with arterial duplex between 1993 and October 2005, 5924 were screened for AAA. The primary target vessel was the carotid arteries in 3772 subjects, the renal arteries in 1529 subjects and the lower extremity arteries in 1457 subjects. An AAA was defined as an infrarenal aortic diameter ≥30 mm.

Results: 179 subjects were found to have an AAA. In a logistic regression model male gender, age and duplex-verified arterial stenosis were independently associated with AAA (odds ratio 3.2, 2.0/20 years and 2.0, respectively, $p < 0.001$). In men <60 years the AAA prevalence was 0.9% (95% confidence interval 0.2–1.6%) when arterial stenosis was absent and 1.5% (0.0–3.2%) when present. In men ≥60 years the AAA prevalence was 4.0% (3.0–5.1%) when no arterial stenosis was found and 7.3% (5.7–8.9%) when found. The corresponding prevalences in women were 0%, 0%, 1.2% (0.5–1.8%), and 3.1% (1.9–4.3%), respectively.

Conclusions: Men ≥60 years referred for arterial examination have a significant risk of having an AAA while only women ≥65 years with a duplex verified arterial stenosis have a sufficient risk of having an AAA. Studies to evaluate the benefit of selective high-risk screening are warranted.

EVAR of Aortoiliac Aneurysms with Branched Stent-grafts

Dias N.V., Resch T.A., Sonesson B., Ivancev K., Malina M. Eur J Vasc Endovasc Surg 2008;35:677-84.

Introduction: Branched iliac stent-grafts (bSG) have recently been developed in order to preserve internal iliac artery (IIA) flow in patients with aneurysmal or short common iliac arteries. The aim of this study is to evaluate a single-center experience with bSG for the IIA.

Methods: Twenty-two male patients (70 (IQR 65–79) years old) underwent EVAR with 23 bSG (1 bilateral repair) between September 2002 and August 2007. Median AAA diameter was 52 (37–60) mm while common iliac diameter on the side of the bSG was 34 (27–41) mm. Two in-house modified Zenith SG and subsequently 21 commercially available bSG (18 Zenith Iliac Side and 3 Helical Branches) were used. Follow-up (FU) included CT at one month and yearly thereafter. Data was prospectively entered in a database.

Results: Primary technical success was 91% (21 bSG). Median FU duration was 20 (8–31) months. One patient (5 %) died after discharge from acute myocardial infarction on day 13. Another patient died 30 months after EVAR of an unrelated cause. The overall bSG patency was 74% due to 6 branch occlusions (2 intraoperative and 4 late). All patients with patent bSG were asymptomatic. Three occlusions were asymptomatic findings on CT, while the other three developed claudication (two patients with contralateral IIA occlusion and one with simultaneous occlusion of the external iliac). One patient (5%) developed an asymptomatic type III endoleak at 1 month and was successfully treated with a bridging SG. Overall, four patients (18%) required reinterventions (1 bilateral stenting of the external iliac arteries, 1 external and 1 internal SG extensions and 1 femoro-femoral cross-over bypass). Nine out of 16 patients (56%) with CT-FU ≥ 1 year had shrinking aneurysms. There were no postoperative aneurysm expansions.

Conclusions: EVAR of aortoiliac aneurysms with IIA bSG is a good alternative to occlusion of the IIA in patients with challenging distal anatomy.

Management of Hypertension in Peripheral Arterial Disease: Does the Choice of Drugs Matter?

Singer D.R.J., Kite A. Eur J Vasc Endovasc Surg 2008;35:701-08.

Cardiovascular disease and death are major life-threatening problems in patients with atheromatous peripheral arterial disease (PAD). This review focuses on management of hypertension in the context of cardiovascular risk in patients with PAD. PAD is underdiagnosed and hypertension in PAD is often poorly managed. Current evidence supports a low threshold for blood pressure treatment in PAD and intensive blood pressure control to reduce the high risk of cardiovascular disease and death in patients with PAD. Optimal treatment targets should be <140/85 mmHg, with the lower target of <130/80 mmHg in the presence of diabetes mellitus or chronic renal disease. Class-specific selection of anti-hypertensive treatments in PAD should be based on caution in relation to co-existing renovascular disease and indications and contraindications based on other significant co-morbidity. There is a pressing need for primary end-point studies targeted specifically at patients with PAD. In particular, prospective studies in PAD are needed to obtain evidence for benefits from specific blood pressure classes of treatment as well as the optimal blood pressure treatment target level. These studies should consider impact in PAD of different demographic, risk factor, and co-morbidity profiles.